

REMARKS

Reconsideration of the application is respectfully requested in view of the amendments and discussion presented below. Claim 1 is amended to add "wherein the semiconductor surface and the defects are composed of the same material". The amendment is supported by the application as originally filed, and no new matter has been added by the amendment. Further, the narrowing amendment of claim 1 in no way broadens the scope of claim 1, and thus no new search is necessitated by the amendment.

Claims 6-8, 13-17, and 24-32 were previously cancelled. Claims 1-5, 9-12 and 18-23 are present in this application.

Discussion

1. Rejection of claims 1-3 and 18-20 under 35 U.S.C. § 102(b) as being anticipated by Fujisada

The claims 1-3 and 18-20 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Japanese patent document JP 58-18928 to Fujisada, et al. ("Fujisada"). The rejection is respectfully traversed for the reasons set forth below.

Claim 1, as amended, recites:

A method for removing defects from a semiconductor surface,
comprising:

coating the semiconductor surface and the defects with a protective layer, wherein the protective layer has a planar top surface, and wherein the semiconductor surface and the defects are composed of the same

material;

thinning the protective layer to selectively reveal top portions of
the growth defects;

removing the growth defects; and

removing the protective layer.

In examining a patent application the words of a claim must be given their plain meaning unless the plain meaning is inconsistent with the specification. In re Zletz, 893 F.2d 319, 321, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989). Also, "Ordinary, simple English words whose meaning is clear and unquestionable, absent any indication that their use in a particular context changes their meaning, are construed to mean exactly what they say" Chef America, Inc. v. Lamb-Weston, Inc., 358 F.3d 1371, 1372, 69 USPQ2d 1857 (Fed. Cir. 2004).

Claim 1 recites that "the protective layer has a planar top surface". The adjective "planar" is an ordinary and simple English word defined as "1. Of, relating to, or situated in a plane. 2. Flat: *a planar surface*. 3. Having a two-dimensional characteristic." The American Heritage Dictionary of the English Language, Fourth Edition. Houghton Mifflin Company, 2004.

The plain meaning of "planar" is clearly and unquestionably "flat." The plain meaning is not inconsistent with the specification, as the applicant in no way indicates a contrary or otherwise different meaning of "planar." Also, the context in which "planar" is used, i.e., the claim 1 recitation of "the protective layer has a planar top surface", in no way could possibly be read to change its plain meaning. Accordingly, "planar" should be given its plain meaning of "flat" when construing claim 1.

Special attention is called to the example of "planar" given in the American Heritage Dictionary, "Flat: a planar surface." Unquestionably, in view of the plain meaning of "planar", the proper construction of the recited "the protective layer has a planar top surface" requires that the top surface of the protective layer have a flat surface.

The figures of Fujisada clearly show a resist layer 3 having a surface which is **not** planar. Specifically, defects or protrusions 2 are thinly coated in resist 3 and are shown rising through multiple planes. The surface of the resist layer 3 is **not** flat, i.e., **not** two-dimensional, it conforms to the shapes of the rising protrusions 2. Thus, Fujisada does not teach or suggest a top surface of a protective layer having a planar surface. It is respectfully requested that the Examiner withdraw the rejection of claim 1 for at least this reason, because a rejection for anticipation requires that the reference teach every element of the claim.

Claims 2, 3, and 18-20 depend from claim 1 and are allowable for at least that reason.

2. Rejection of claims 1-3, 11 and 18-21 under 35 U.S.C. § 102(e) as being anticipated by Dokumeci

The claims 1-3, 11, and 18-21 stand rejected under 35 U.S.C. § 102(e) as being anticipated by United States Patent No. 6,642,147 to Dokumeci, et al. ("Dokumeci"). The rejection is respectfully traversed for the reasons set forth below.

It will be noted that claim 1 requires "**wherein the semiconductor surface and the defects are composed of the same material**". This limitation is not taught or suggested by Dokumeci.

As disclosed in paragraph 0004 of the originally filed application “defects are an integral part of the semiconductor wafer surface and **are composed of the same material as the surrounding active device layers.**” Further still, as disclosed in paragraph 0020 of the originally filed application “FIG. 2 shows a schematic cross-sectional view of an epitaxial layer 1 having a plurality of defects or defective structures, **made of the same material as the epitaxial layer.**”

Dokumeci is directed to a method of planarizing a semiconductor surface up to the height of protruding structures without the need for chemical mechanical polishing (see, for example, column 1, lines 7-15). With reference to Figures 1 and 2 and the first full paragraph in column 3, a layer of a planarizing HDP (high density plasma) film 4 of silicon oxide or silicon nitride is deposited on the semiconductor 1 up to the top of structures 3, 3' formed thereon. The structures, such as gates, are composed of silicon, polysilicon, or metal (column 1, lines 51-55, and column 5, lines 63-65). During deposition of the HDP “a substantial HDP excess 4' deposited on top of these structures” (column 3, lines 5-9). To remove unwanted excess HDP 4' a protective layer 5 is first deposited on the semiconductor 1 such that the desired HDP 4 is protected, while the excess HDP 4' is exposed. The excess HDP 4' is then etched away (column 3, lines 54-56, column 5, lines 14-17, and figures 3a, 3b).

As shown above, Dokumeci removes excess silicon oxide or silicon nitride HDP from the surface of a semiconductor feature made of silicon, polysilicon, or metal. The removed material (the defects) is not composed of the same material as the surface of the semiconductor feature, nor does Dokumeci in any way suggest that it could be. Thus, Dokumeci does not teach or suggest “coating the semiconductor surface and the defects with a protective layer ... wherein the semiconductor surface and the defects are composed of the same material”.

In view of the above, it is respectfully requested that the Examiner withdraw the rejection of claim 1, because a rejection for anticipation requires that the reference teach every element of the claim.

Claims 2, 3, 11 and 18-21 depend from claim 1 and are allowable for at least that reason.

3. Rejection of claims 4, 5, and 9-12 under 35 U.S.C. § 103(a) as being unpatentable over Fujisada as applied to claim 3 and in further view of Kudo or Nakayama

The Examiner rejects claims 4, 5, and 9-12 under 35 U.S.C. § 103(a) as being unpatentable over Fujisada as applied to claim 3 and in further view of Japanese patent documents JP 63-216346 to Kudo, et al. ("Kudo") or JP 4070704147 to Nagayama, et al. ("Nagayama"). The rejection is respectfully traversed.

The rejection of claims 4, 5, and 10 are over Fujisada and an argument based on case law that the ranges and rates added to claim 1 by these claims involve "routine optimization" that "has been held to be within the level of ordinary skill in the art." The Examiner admits that Fujisada does not teach the claimed steps.

The rejection of claims 9, 11, and 12 are over Fujisada as the primary reference and rely on Kudo and Nagayama for teaching the steps of thinning the protective layer recited in those claims. The Examiner admits that Fujisada does not teach the claimed steps.

However claims 4, 5, and 9-12 depend from claim 1 and incorporate that claim's limitations. As noted above, Fujisada does not anticipate claim 1. Therefore, the *prima facie* case of obviousness of claims 4, 5, and 9-12 fails and must be withdrawn because

"[t]o establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art." M.P.E.P. § 2143.03.

4. Rejection of claims 21-23 under 35 U.S.C. § 103(a) as being unpatentable over Fujisada as applied to claim 1 and in further view of Takehiko or Skee

The Examiner rejected claims 21-23 under 35 U.S.C. § 103(a) as being unpatentable over Fujisada as applied to claim 1 and in further view of Japanese patent document JP 06041770 to Takehiko, et al. ("Takehiko") or U.S. patent 5,989,353 to Skee, et al. ("Skee"). The rejection is respectfully traversed.

The rejection of claims 21-23 are over Fujisada as the primary reference and rely on Takehiko and Skee for teaching the steps of removing the defects using a chemical etchant recited in those claims. The Examiner admits that Fujisada does not teach the claimed steps.

However claims 21-23 depend from claim 1 and incorporate that claim's limitations. As noted above, Fujisada does not anticipate claim 1. Therefore, the *prima facie* case of obviousness of claims 21-23 fails and must be withdrawn because "[t]o establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art." M.P.E.P. § 2143.03.

5. Rejection of claims 4-5, 9-11 and 12 under 35 U.S.C. § 103(a) as being unpatentable over Dokumeci as applied to claim 1 and in further view of Kudo or Nakayama

The Examiner rejects claims 4-5, 9-11, and 12 under 35 U.S.C. § 103(a) as being unpatentable over Dokumeci as applied to claim 1 and in further view of Japanese

patent documents JP 63-216346 to Kudo, et al. ("Kudo") or JP 4070704147 to Nagayama, et al. ("Nagayama"). The rejection is respectfully traversed.

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The rejection of claims 4, 5, and 10 are over Dokumeci and an argument based on case law that the ranges and rates added to claim 1 by these claims involve "routine optimization" that "has been held to be within the level of ordinary skill in the art." The Examiner admits that Dokumeci does not teach the claimed steps.

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6. Rejection of claims 21-23 under 35 U.S.C. § 103(a) as being unpatentable over Dokumeci as applied to claim 1 and in further view of Takehiko or Skee

The Examiner rejected claims 21-23 under 35 U.S.C. § 103(a) as being unpatentable over Dokumeci as applied to claim 1 and in further view of Japanese patent document JP 06041770 to Takehiko, et al. ("Takehiko") or U.S. patent 5,989,353 to Skee, et al. ("Skee"). The rejection is respectfully traversed.

The rejection of claims 21-23 are over Dokumeci as the primary reference and rely on Takehiko and Skee for teaching the steps of removing the defects using a

chemical etchant recited in those claims. The Examiner admits that Dokumeci does not teach the claimed steps.

However claims 21-23 depend from claim 1 and incorporate that claim's limitations. As noted above, Dokumeci does not anticipate claim 1. Therefore, the *prima facie* case of obviousness of claims 21-23 fails and must be withdrawn because "[t]o establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art." M.P.E.P. § 2143.03.

Conclusion

In view of the above, the Applicant submits that the application is now in condition for allowance and respectfully urges the Examiner to pass this case to issue. The Examiner is respectfully invited to telephone the undersigned attorney as needed in order to advance the examination of this application.

* * *

The Commissioner is authorized to charge any additional fees which may be required or credit overpayment to deposit account no. 12-0415. In particular, if this response is not timely filed, then the Commissioner is authorized to treat this response as including a petition to extend the time period pursuant to 37 CFR 1.136(a) requesting an extension of time of the number of months necessary to make this response timely filed and the petition fee due in connection therewith may be charged to deposit account no. 12-0415.

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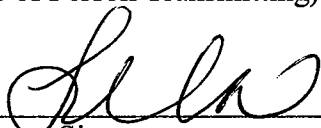
Respectfully submitted,

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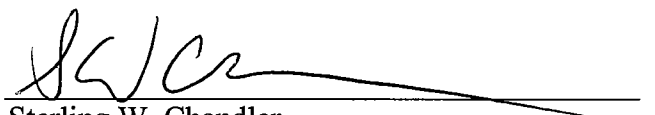
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